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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,636

05/18/2006

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AG014

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01/22/2009

EXAMINER

STIMPERT, PHILIP EARL

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

01/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,636	Applicant(s) FOLCHERT ET AL.	
	Examiner Philip Stimpert	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/18/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 18 May 2006 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.
2. In particular, the examiner finds no list of references for consideration.

Claim Objections

3. Claim 21 is objected to because of the following informalities: the claim ends with a comma instead of a period, and thus is not in single sentence format.
Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 11-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Regarding claim 11, the limitation in line 4 of “the current compressor temperature” lacks antecedent basis in the claim. The limitation also appears to be misleading, as the disclosure is believed to indicate that the relevant quantity is a discretely calculated compressor temperature. It is thus not current except in an approximate sense, nor is it an actual measured temperature of the compressor (rather being calculated). This would cause one of ordinary skill to be unsure of the scope of the claim and therefore renders it indefinite.

7. Regarding claim 12, the limitation “the difference,” in line 4 lacks antecedent basis in the claim.

8. Regarding claims 13, 15, and 16, the limitation “a difference” constitutes a further positive recitation of this limitation, the first recitation being made in claim 12. Also

9. Regarding claims 17 and 18, each of these claims recites “a temperature value dT ,” which limitation has already been recited in claim 12. These claims also recite “when predefining,” which effectively references a method step which has not been recited by claims 11 or 12. The predefinition is therefore considered to lack antecedent basis.

10. Regarding claim 20, the limitation in line 4 of “the current compressor temperature” suffers from the same deficiencies as in claim 11.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 11, 12, 20 and 21 rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (US 4,462,610).

13. Regarding claim 11, Saito et al. teach a method for controlling a compressor (9) which is suitable for conveying a pressure medium (air, see col. 2, ln. 1) in a closed pressure medium system (see Fig. 1). The method includes continuously determining a current temperature of the compressor (9) by measuring that quantity with a sensor (17) during compressor operation, and switching off the compressor when it reaches a limit temperature (col. 2, ln. 67 through col. 3, ln. 8). Since the temperature used for the switching off step is an empirically measured value, the influences of admission pressure and counterpressure (or inlet/suction and outlet/discharge pressure, as these quantities are more commonly termed in the art) are inherently included in that temperature, and are thus substantially taken into consideration.

14. Regarding claim 12, Saito et al. teach that the temperature of the compressor is continuously measured throughout operation. If examined discretely, this will lead to a change in temperature, dT, for every elapsed unit of time, dt. As above, since the temperature is empirically measured, the dT of Saito et al. will depend upon the difference between inlet and outlet pressures.

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15. Regarding claim 20, Saito et al. teach a compressor unit (see Fig. 1) which can be switched on and off as a function of demand (col. 2, ln. 53-59), for a closed pressure medium system, the compressor unit comprising a compressor (9) and a control unit (14) associated with the compressor (9) that continuously determines a current temperature of the compressor (9) via a temperature sensor (17) during operation of the compressor (9). The control system (14) is also designed to switch off the compressor if a limit temperature is reached (col. 2, ln. 67 through col. 3, ln. 8). The control system is further capable of taking into account inlet and outlet pressures of the compressor when determining the compressor temperature by means of actually measuring the temperature.

16. Regarding claim 21, Saito et al. teach that the compressor unit is designed for a closed level adjustment system of a motor vehicle.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claim 17 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Saito et al.

19. Saito et al. teach that their compressor system is for a vehicle. They do not explicitly state that the compressor and temperature limiting system thereof operate while the vehicle is moving. However, it is either inherent or obvious to one of ordinary

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skill that this would be the case under some circumstances. In such an operational mode, the movement of the vehicle would be taken into consideration in the temperature value determination by the measurement of the temperature.

20. Claims 13-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. in view of Hahn et al. (US 6,406,265), Aurbeck (US 6,193,470) and Staroselsky et al. (US 5,743,715).

21. Regarding claim 13, Saito et al. teaches a method for controlling a compressor, as noted above with respect to claim 12. Saito et al. do not teach predetermining a functional relationship between compressor temperature and load expressed as a difference between outlet and inlet pressures. Hahn et al. teach a compressor diagnostic system. In particular, Hahn et al. teach a microprocessor (26) monitoring inlet (at 38) and outlet (at 32) pressure of a compressor as part of a method of providing diagnostic information about a compressor (col. 2, ln. 8-26). One of ordinary skill in the art would have found it obvious at the time of the invention therefore to include a control unit and pressure sensors as taught by Hahn et al. to increase the diagnostic information available to a user of the system of Saito et al. As noted, Saito et al. teach a pressure sensor (17) included in their compressor for monitoring temperature. One of ordinary skill would appreciate that the load on the compressor is a significant factor in its temperature profile. Staroselsky et al. teach a multiple compressor control system. In particular, Staroselsky et al. teach using a pressure differential across a compressor (difference between outlet and inlet pressures) to determine load on the compressor. Aurbeck teaches a method of operating a compressor involving establishing a

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characteristic diagram of the compressor's performance in a given set of circumstances via experimentation (col. 2, ln. 3-13). One of ordinary skill would thus be aware of the possibility of using a pressure differential across a compressor to measure the load thereof, and to thereby establish a characteristic diagram based on that pressure differential to predict the temperature of the compressor. Finally, one of ordinary skill would recognize that this possibility would allow the elimination of the temperature sensor of Saito et al., thereby simplifying the construction of the compressor of that reference. The storage of a characteristic diagram of the difference between outlet pressure and inlet pressure would thus be rendered obvious by the references in combination.

22. Regarding claim 14, one of ordinary skill in the art would appreciate that implementation of the characteristic diagram of Aurbeck would involve setting a fixed temperature differential, dT , based on the pressure differential present at the beginning of compressor operation, as determined by the experimentation envisioned by Aurbeck.

23. Regarding claim 15, one of ordinary skill in the art would appreciate that implementation of the characteristic diagram of Aurbeck would involve setting a temperature differential as the maximum in the characteristic diagram when the pressure differential is the maximum in the characteristic diagram (and therefore > zero).

24. Regarding claim 16, one of ordinary skill in the art would appreciate that implementation of the characteristic diagram of Aurbeck would involve setting a temperature differential as the value in the characteristic diagram associated with a

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pressure differential of zero when the pressure differential is in fact zero (less than or equal to zero).

25. Regarding claim 18, one of ordinary skill in the art would appreciate that, as taught by Hahn et al., the compressor may be electrically operated, and the electrical operating voltage can be taken into consideration when monitoring the compressor (col. 3, ln. 44-49). In the combination, it would therefore be obvious to utilize compressor voltage in determining a temperature differential during operation.

26. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. in view of Meier et al. (US 2002/0187048).

27. Saito et al. teach the limitations of claim 11 from which claim 10 depends, but do not teach the step of defining a maximum operating time of the compressor. Meier et al. teach a method for controlling a compressor, and in particular teach that the provision of a time limit in addition to a temperature limit can increase protection of a compressor system (paragraph 49). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to define a maximum operating time for the compressor at the beginning of compressor operation in order to more fully protect the compressor as taught by Meier et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
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/P. S./
Examiner, Art Unit 3746
16 January 2009